

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: James C. Deepak et al. Examiner: Long Pham

Serial No.: 10/815,009 Group Art Unit: 2814

Filed: March 31, 2004 Docket: 1880.004US1

For: CONDUCTIVE MATERIAL COMPOSITIONS, APPARATUS, SYSTEMS, AND METHODS

APPEAL BRIEF UNDER 37 CFR § 41.37

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on July 2, 2009, from the Final Rejection of claims 1, 4-5, 12, 14-17, and 40-43 of the above-identified application, as set forth in the Final Office Action mailed on April 3, 2009.

The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 19-0743 in the amount of \$540.00 which represents the requisite fee set forth in 37 C.F.R. § 41.20(b)(2). The Appellant respectfully requests consideration and reversal of the rejections of pending claims.

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee,
HALLIBURTON ENERGY SERVICES, INC.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings known to the Appellant that will have a bearing on the Board's decision in the present Appeal.

3. STATUS OF THE CLAIMS

The application was originally filed on May 31, 2004 with claims 1-46. A Restriction Requirement was mailed on August 29, 2005. In a Response to the Restriction Requirement filed on September 23, 2005, claims 18-29 were canceled. A second Restriction Requirement was mailed on October 26, 2004. A Supplemental Restriction Requirement was mailed on November 29, 2005. In a Response to the Supplemental Restriction Requirement, filed December 29, 2005, Species 4 was elected.

A non-final Office Action was mailed on March 27, 2006. In a Response to the non-final Office Action filed on June 26, 2006, no claims were amended, and claims 18-29 were canceled. Thus, claims 1-17 and 30-46 remained pending, with claims 6-11, 30-39 and 44-46 withdrawn from consideration.

A non-final Office Action was mailed September 28, 2006. In a Response to the non-final Office Action filed January 25, 2007, claims 1-3 and 12-13 were amended. Claims 1-17 and 30-46 remained pending, with claims 7-11 and 30-39 being withdrawn. A final Office Action was mailed April 19, 2007. In a Response to the final Office Action filed May 8, 2007, a Pre-Appeal Brief Request for Review and Notice of Appeal were filed. The Decision on Pre-Appeal Brief mailed to the Appellant on June 11, 2007 re-opened prosecution.

A non-final Office Action was mailed on August 20, 2007. In a Response to the non-final Office Action filed on February 19, 2008, claims 1-5, 12-14 and 40 were amended. Claims 1-5, 12-17 and 40-43 remained pending. A final Office Action was mailed May 30, 2008. In a Response to the final Office Action filed with an RCE on August 1, 2008, claims 1, 6, 9 and 12 were amended, and claims 2-3, 13, 30-39 and 44-46 were canceled. Claims 6-11 were withdrawn from consideration. As a result, claims 1, 4-12, 14-17 and 40-43 remained pending.

A non-final Office Action was mailed October 17, 2008. In response to the non-final Office Action filed January 9, 2009, claims 1, 6, 9, 12 and 40 were amended. Claims 6-11 remained withdrawn, with claims 1, 4-12, 14-17 and 40-43 pending. A final Office Action was mailed on April 3, 2009. In a Response to the final Office Action filed on June 3, 2009, claims 1, 4-6, 9, 12, 16-17 and 40 were amended, no claims were canceled, and no claims were added.

Claims 6-11 remained withdrawn, with claims 1, 4-12, 14-17 and 40-43 pending. An Advisory Action was mailed on June 29, 2009. In response to the Advisory Action, a Notice of Appeal was filed on July 2, 2009. Claims 1, 4-5, 12, 14-17, and 40-43 stand finally rejected, remain pending, and are the subject of the present Appeal.

4. STATUS OF AMENDMENTS

No amendments have been made subsequent to those set forth in the Response to the final Office Action filed on June 3, 2009.

5. SUMMARY OF CLAIMED SUBJECT MATTER

This summary is presented in compliance with the requirements of Title 37 C.F.R. § 41.37(c)(1)(v), mandating a “concise explanation of the subject matter defined in each of the independent claims involved in the appeal ...”. Nothing contained in this summary is intended to change the specific language of the claims described, nor is the language of this summary to be construed to limit the scope of the claims in any way.

INDEPENDENT CLAIM 1 (FIG. 1; and Paragraphs 0010, 0014, and 0015)

1. A component lead 114 comprising:

a lead finish 118 comprising from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin disposed over the component lead 114.

INDEPENDENT CLAIM 12 (FIG. 1; and Paragraphs 0010, 0014, 0015, and 0019)

12. A system 160 comprising:

a component lead 114 having a lead finish 118 disposed over the component lead 114, the lead finish 118 comprising from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin; and

a downhole transducer 164 coupled to the component lead 114.

INDEPENDENT CLAIM 40 (FIG. 1; and Paragraphs 0010, 0014, 0015, and 0018)

40. An assembly 168 comprising:

a downhole transducer 164 coupled to a circuit trace 130 included in a circuit (composite of multiple traces 130) attached to a composition 126 including a first amount from about 78% to less than 80% by weight of lead, a second amount between about 9% and about 11% by weight of antimony, a third amount greater than 5% up to about 12% by weight of silver, and a balance of tin.

This summary does not provide an exhaustive or exclusive view of the claimed subject matter, and the Appellant refers the reader to each of the appended claims and its legal equivalents for a complete statement of the claimed embodiments of the invention.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

6.A Claims 1 and 4-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Master et al. (US pub 20030037959; hereinafter "Master") in combination with the "applicant's admitted prior art" (AAPA) of this application, as asserted by the Office.

6.B Claims 12 and 14-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Master in combination with the AAPA.

6.C Claims 40-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in combination with Master.

7. ARGUMENT

1) The Applicable Law

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988). As discussed in *KSR International Co. v. Teleflex Inc. et al.* (U.S. 2007), the determination of obviousness under 35 U.S.C. § 103 is a legal conclusion based on factual evidence. *See Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 7, 1336-37 (Fed. Cir. 2005). The legal conclusion, that a claim is obvious within § 103(a), depends on at least four underlying factual issues set forth in *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966): (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) evaluation of any relevant secondary considerations.

The *KSR* Court further held that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (*See In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006) cited with approval in *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-41 (2007)).

Therefore, the Examiner must, as one of the inquiries pertinent to any obviousness inquiry under 35 U.S.C. § 103, recognize and consider not only the similarities but also the critical differences between the claimed invention and the prior art. (*In re Bond*, 910 F.2d 831,834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990), *reh'g denied*, 1990 U.S. App. LEXIS 19971 (Fed. Cir.1990).) Critical differences in the prior art must be recognized (when attempting to combine references). (*In re Bond*, 910 F.2d 831,834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990), *reh'g denied*, 1990 U.S. App. LEXIS 19971 (Fed. Cir.1990).)

Moreover, the fact that a reference teaches away from a claimed invention is highly probative that the reference would not have rendered the claimed invention obvious to one of ordinary skill in the art. (*Stranco Inc. v. Atlantes Chemical Systems, Inc.*, 15 USPQ2d 1704, 1713 (Tex. 1990).) When the prior art teaches away from combining certain known elements,

discovery of a successful means of combining them is more likely to be nonobvious. (*Id.* at 4 citing *United States v. Adams*, 383 U.S. 39, 51-51 (1966).)

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." (*In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The CCPA has also noted that "[t]he court must be ever alert not to read obviousness into an invention on the basis of the applicant's own statements; that is, we must view the prior art without reading into that art appellant's teachings." *In re Spinnoble*, 160 USPQ 237, 243 (CCPA 1969). These principles have not been changed by the ruling in *KSR*.

2) Application of § 103 to Rejected Claims – Master Teaches Away from the Modification Suggested by the Office

Independent claims 1, 12, and 40 recite a lead finish or a composition comprising "from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin". The Office asserts that Master teaches "a lead finish comprising about 80-85 percent by weight of lead, about 1-5 percent by weight of silver, about 6-12 percent by weight of antimony, and a balance of tin." Thus, there is no *prima facie* case of obviousness, since all of the claimed ranges do not "overlap or lie inside ranges disclosed by the prior art". See *In re Wertheim*, 541 F.2d 257 (CCPA 1976).

In addition, the Appellant anticipates an expression of concern by the Examiner that was noted during the Examiner's Interview on May 8, 2009. This included a discussion about whether it might be obvious to try modifying the ranges in the cited art to match those that are claimed. In reply, the reader is asked to consider the following two arguments.

First, it is respectfully noted that the prior assertion made by the Office is not quite correct. Master actually teaches the use of at least 3% tin, and not "a balance of tin". Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to prepare the composition claimed by the Appellant when exposed to the teaching of Master and/or the AAPA because the range of silver claimed by the Appellant permits the use of compositions that have *no tin*, and Master teaches away from compositions that do not use tin. That is, Master states

that a "low weight percent (wt. %) of tin (Sn)" is advantageous, and goes on to explicitly teach the use of at least 3% tin in every example given by the reference. *See* Master, paragraphs [0017], [0035], [0041] – [0042], [0045], and Master's claims. Thus, it would not be obvious to one of ordinary skill in the art to try the range of silver claimed by the Appellant because such use would not permit the composition to include at least 3% tin in every case, as taught by Master.

Second, it is respectfully submitted that one of ordinary skill in the art would not be motivated to prepare the composition claimed by the Appellant when exposed to the teaching of Master and/or the AAPA because Master teaches using less than 80% lead only when silver is absent, and bismuth is present (e.g., lead from 64 wt. % to 85 wt. % with no silver, at least 3% tin, antimony, and at least 2% bismuth). *See* Master, paragraph [0035]. Thus, it would not be obvious to one of ordinary skill in the art to try the range of lead claimed by the Appellant because the Appellant also claims the use of greater than 5% silver, and Master teaches away from using silver when less than 80% of lead is used.

In conclusion, the ranges of elements claimed by the Appellant do not overlap those taught by Master. Further, it would not be obvious to modify Master to include the ranges claimed by the Appellant because Master teaches away from the claimed compositions.

Therefore, it is believed that each of the rejected claims includes limitations which are not anticipated nor rendered obvious by the cited references, independent claims 1, 12, and 40 should now be in condition for allowance. In addition, it is respectfully noted that any claim depending from a nonobvious independent claim is also nonobvious. *See* M.P.E.P. § 2143.03. Thus, dependent claims 4-5, 14-17, and 41-43 should also be in condition for allowance. Reconsideration and withdrawal of the rejection of claims 1, 4-5, 12, 14-17, and 40-43 under 35 U.S.C. § 103(a) is therefore respectfully requested.

SUMMARY

It is respectfully submitted that the claims are patentable over the cited art. Reversal of the rejections and allowance of the pending claim are respectfully requested.

Respectfully submitted,

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Date: August 31, 2009

By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 31st day of August 2009.

PATRICIA A. HULTMAN

Name

Patricia A. Hultman
Signature

8. CLAIMS APPENDIX

1. (Rejected) A component lead comprising:
a lead finish comprising from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin disposed over the component lead.
2. – 3. (Canceled)
4. (Rejected) The component lead of claim 1, wherein the component lead is to be coupled to a lead of a surface mount component.
5. (Rejected) The component lead of claim 1, wherein the component lead is coupled to a downhole electronic assembly.
6. (Withdrawn) A package structure comprising:
a package; and
a plurality of component leads coupled to a circuit included in the package and having a lead finish comprising from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin.
7. (Withdrawn) The package structure of claim 6, wherein the circuit is included in a substrate.
8. (Withdrawn) The package structure of claim 7, wherein the package structure is part of a downhole electronic assembly.
9. (Withdrawn) A circuit board, comprising:

a processor; and

a circuit coupled to the processor and included in a package structure having a plurality component leads having a lead finish comprising from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin.

10. (Withdrawn) The circuit board of claim 9, wherein the circuit includes a memory.

11. (Withdrawn) The circuit board of claim 9, wherein the circuit includes a digital-to-analog converter.

12. (Rejected) A system comprising:

a component lead having a lead finish disposed over the component lead, the lead finish comprising from about 78% to less than 80% by weight of lead, between about 9% and about 11% by weight of antimony, greater than 5% up to about 12% by weight of silver, and a balance of tin; and

a downhole transducer coupled to the component lead.

13. (Canceled)

14. (Rejected) The system of claim 12, wherein the downhole transducer is selected from the group consisting of a downhole temperature indicator, a downhole vibration sensor, a pressure sensor, an accelerometer, and a fluxgate.

15. (Rejected) The system of claim 12, wherein the downhole transducer is to measure a subsurface characteristic that is selected from a group consisting of a downhole temperature, a downhole pressure, a resistivity of a subsurface formation, a porosity of a subsurface formation, a diameter of a borehole, and a shape of the borehole.

16. (Rejected) The system of claim 12, further comprising:

a processor coupled to the component lead.

17. (Rejected) The system of claim 12, further comprising:

an amplifier coupled to the component lead.

18. - 39. (Canceled)

40. (Rejected) An assembly comprising:

a downhole transducer coupled to a circuit trace included in a circuit attached to a composition including a first amount from about 78% to less than 80% by weight of lead, a second amount between about 9% and about 11% by weight of antimony, a third amount greater than 5% up to about 12% by weight of silver, and a balance of tin.

41. (Rejected) The assembly of claim 40, further comprising:

a processor to be communicatively coupled to the circuit.

42. (Rejected) The assembly of claim 40, wherein the circuit includes a data acquisition system.

43. (Rejected) The assembly of claim 40, wherein the circuit includes a filter.

9. EVIDENCE APPENDIX

None.

10. RELATED PROCEEDINGS APPENDIX

None.